

A New Species of the Genus *Delias* from Mindanao, the Philippines (Lepidoptera, Pieridae)

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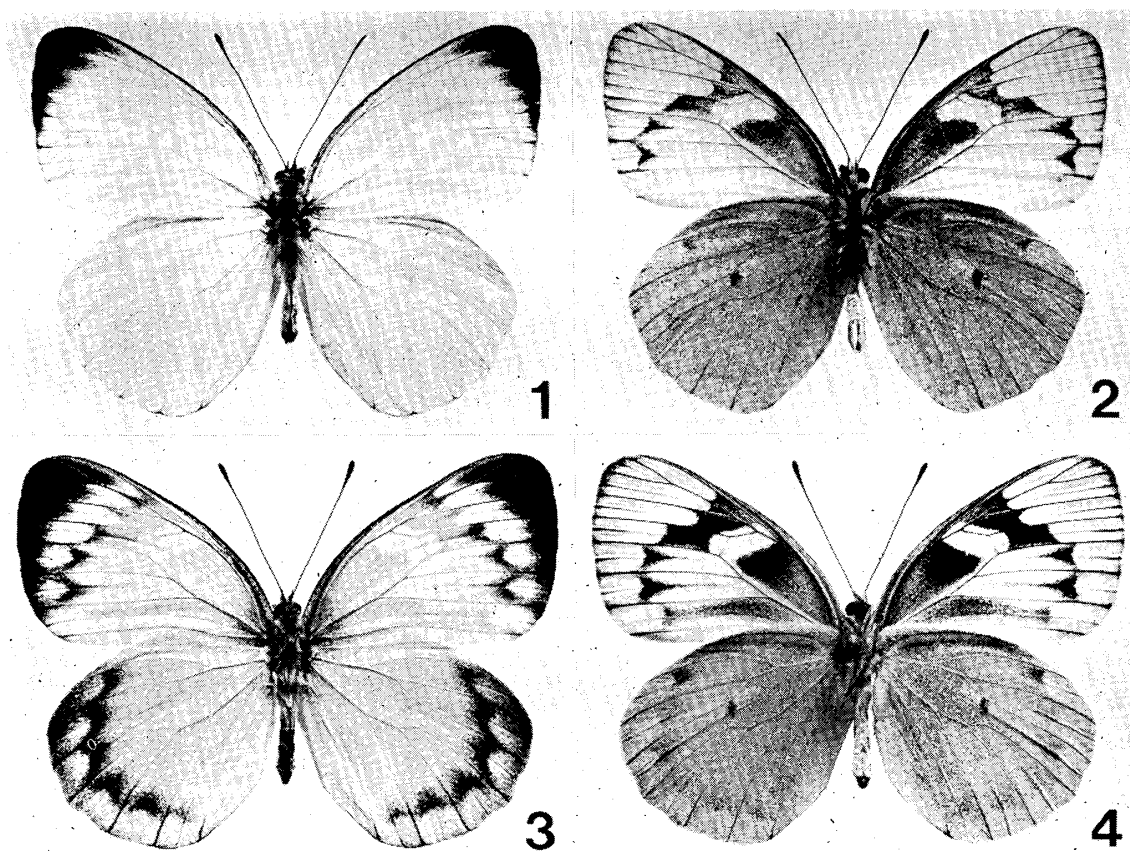
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Though there are many geographic races of the family Pieridae endemic to Mindanao of the Philippines, species endemic to that island are very scarce. Of these, *Delias levicki* ROTHSCILD, 1927 and *D. apoensis* TALBOT, 1928, both endemic to the mountain areas of Mindanao, are very peculiar species having no allies in the genus *Delias* HÜBNER. During our collecting trip to that island made from July to August in 1981, we found a remarkable new species related to these *Delias* in the Tagubud Mountains of southeastern Mindanao. Since this new species is different in any points from *levicki* and *apoensis*, of which it stands more closely to *levicki* than to *apoensis*, the authors are going to describe it in the following lines as new to science.

Delias mandaya sp. nov.

(Figs. 1-2, male; 3-4, female; 5, male genitalia)

Male. Forewing with costa arcuate basally and straight exteriorly, apex obtusely rounded, termen slightly arcuate and somewhat dented at space 3, tornus rounded and dorsum straight. Hindwing with costa evenly rounded, apex obtusely angulate, termen straight at spaces 4 and 5 and slightly dented at space 3, tornus rounded, and the cell slightly longer than a half the length of wing. Antennae black, about 0.53 times as long as the length of forewing, with club long and slender. Eyes naked. Thorax and abdomen black, clothed with sulphur-yellowish long hairs (on thorax and the base of abdomen) or covered with sulphur-yellow scales (on abdomen). Upperside of forewing: Sulphur-yellow, with costal area black dusted with sulphur-yellow scales, and the apical black obliquely extending to the upper half of space 3 without any paler marking in it, but the apical black is dentate interiorly on each space from 4 to 7 and saggitate markings of spaces 2 and 3 and the oblique band on spaces 4-7 of the underside are obscurely able to see through; dorsum fringed with yellow hairs; cilia yellow mixing densely or sparsely with black ones, but they are entirely yellow on the underside. Upperside of hindwing: Entirely sulphur-yellow, with costal area paler and anal area paler and clothed with yellow semirecumbent hairs, but the marginal areas of veins 1b-4 more or less blackish; cilia yellow mixing black hairs on anal margin. Underside of forewing: Sulphur-yellow, becoming paler towards dorsum, black on the basal three-fourths of cell, an oblique postdiscal band, saggitate post-



Figs. 1-4. *Delias mandaya* sp. nov. —1. ♂, Holotype. —2. Ditto, underside. —3. ♀, Paratype. —4. Ditto, underside.

discal markings on spaces 2 and 3, distal margin narrowly from apex to near tornus, almost all veins except on 1b, and on costa entirely, but the black areas are partially covered with yellow scales causing the parts densely covered with these scales seemingly olive-green; parts at the apex of cell extending along cross vein together with the basal parts of spaces 4, 5 and 7 forming a large yellow spot; oblique postdiscal band from bases of spaces 4-8 narrowed and constricted at the base of space 5; black at the distal margin becoming obscure interiorly; parts exterior to postdiscal band and sagittate spots more strongly tinged with cream-yellow. Underside of hindwing: Black, covered with dense yellow scales causing the surface seemingly olive-green, with a narrow red stripe which is diffused with black scales and margined anteriorly along vein 8 with black along the anterior margin of space 7, a row of obscure submarginal lunulae of brighter scales from spaces 1b to 6, a small black patch on cross vein at the end of cell, and a small obscure black spot at the interior side of the submarginal lunula of space 6, but the submarginal lunulae are individually variable. Length of forewing: 38-42 mm.

Female. Different from the male in the following points: 1) Ground colour on both sides is mustard- or orange-yellow, deeper than that of the male; 2) marginal black on the upperside of forewing, extending to the anterior half of the space 1b, is more distinct; 3) postdiscal band of forewing is rather distinct, with the sagittate markings on the space 2 and 3 extending along veins and connected with the mar-

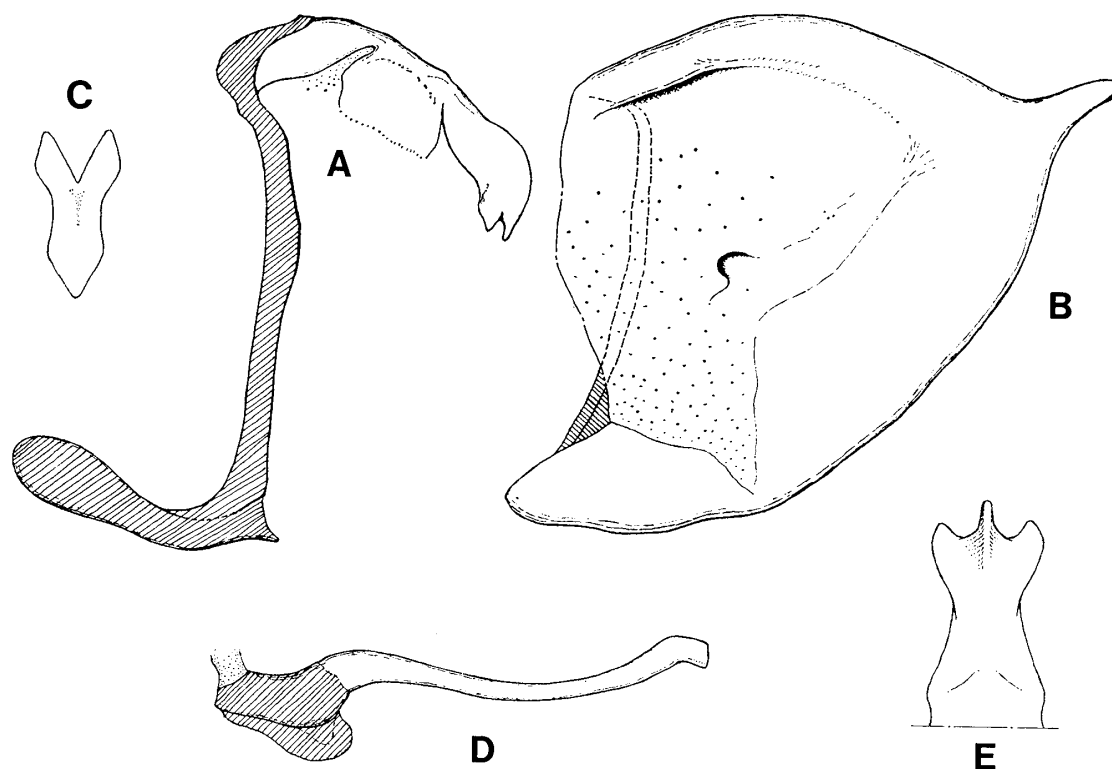


Fig. 5. Male genitalia of *Delias mandaya* sp. nov., paratype. A: Lateral aspect of ring. B: Inner aspect of right valva. C: Posterior aspect of juxta. D: Lateral aspect of phallus. E: Dorsal aspect of uncus.

ginal black; 4) upperside of hindwing is darker with a distinct row of submarginal lunulae forming a zigzag band; 5) veins from 1b to 7 of hindwing on the upperside are black in the exterior half; 6) space 1b of the underside of forewing is diffused densely or sparsely with black scales except for the exterior bright marking; 7) red stripe of the underside of hindwing is longer and extends to the end of space 7; 8) wing contour of forewing is more strongly rounded at the termen, but the costa is less strongly rounded basally, and that of hindwing is more strongly produced at the end of vein 6 and more strongly wavy at the termen. Length of forewing: 36–43 mm.

Male genitalia. Very similar to those of *D. levicki*. Tegumen incurved, widened posteriorly, trapezoidal in dorsal aspect; valvenansatz broad; saccus a half as long as ring in lateral aspect; uncus trifurcate, with the median process long and slender. Valva broad, with distal portion markedly produced; dorsal margin rounded; ventral fold broad, thickened at lower angle. Phallus long, slender, and slightly arcuate dorsally; subzonal sheath about 1/3 as long as suprazonal sheath. Juxta Y-shaped in posterior aspect.

Holotype: ♂, Tagubud Mts. (1,600 m), Southeastern Mindanao, 31. vii. 1981, A. YAMAMOTO leg.

Paratypes: 1 ♂, same locality as the holotype, 30. vii. 1981, A. YAMAMOTO leg.; 3 ♀, do., 30. vii. 1981, S. TAKEI leg.; 1 ♂, do., 31. vii. 1981, S. TAKEI leg.; 3 ♂ 2 ♀, do., 1. viii. 1981, S. TAKEI leg.; 2 ♂ 2 ♀, do., 1. viii. 1981, A. YAMAMOTO leg.

The holotype and a female paratype will be deposited in the collection of Biological

Laboratory, College of General Education, Kyushu University. A pair of paratypes are also deposited in the collection of the National Science Museum (Natural History), Tokyo.

Judging from the external and genital characters, this species seems to stand most closely to *D. levicki* ROTHCHILD, 1927, from the mountain area of Mindanao, but is easily distinguished from the latter by the following characters: 1) Ground colour of both wings except for the underside of hindwing is sulphur-yellow, while in *levicki* it is creamy-white or sometimes creamy-white tinged with a slight pale yellow in the female; 2) black distal border on the upperside of male forewing narrower, more strongly dentate interiorly on each space from 4 to 7, without any marking in it, while in *levicki* it is much broader, less strongly dentate interiorly on each space, with three or four subapical whitish spots in it, but sometimes these spots often become obscure; 3) saggitate black postdiscal patches in the spaces 2 and 3 of the underside of male forewing are marked much interiorly than those of *levicki*; 4) underside of hindwing of both sexes has a black discocellular spot and a small postdiscal black patch on the space 6, while that of *levicki* has none; 5) subcostal red stripe on the underside of hindwing of both sexes is much longer, margined anteriorly along the vein 8 with black, and is diffused with black scales than that of *levicki*; 6) colour of the veins on the underside of hindwing of both sexes is concolorous with the ground colour except for the distal black, while in *levicki* they are white; 7) submarginal band in the upperside of female forewing consists of six large mustard-yellow spots, while in *levicki* it is reduced into a series of small submarginal white spots separated by the very broad postdiscal black bands; 8) on the upperside of female hindwing, the black outer border is less developed and the series of submarginal markings are somewhat longer than those of *levicki* respectively; 9) length of forewing is somewhat longer than that of *levicki*; 10) termen of forewing is somewhat dented at the space 3, and, in the hindwing, the termen is somewhat dented at the space 3 in the male, or more strongly wavy in the female, while in *levicki* it is evenly rounded.

Acknowledgements. We wish to express our deep gratitude to Dr. Takashi SHIRÔZU, Professor Emeritus of Kyushu University, and Mr. Osamu YATA, of Biological Laboratory, College of General Education, Kyushu University, for their various guidances and helpful advices for this study. Thanks also should be extended to Dr. Yoshihiko KUROSAWA, Dr. Shun-Ichi UÉNO, and Mr. Mamoru OWADA of the National Science Museum (Natural History), Tokyo, for their kind help in preparing the manuscript of this paper.